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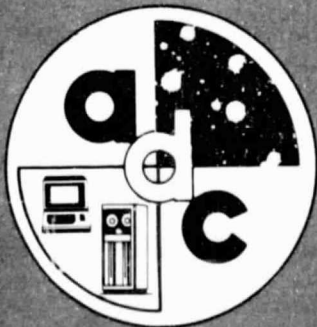
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DOCUMENTATION FOR THE MACHINE-READABLE VERSION

OF THE

PERTH 75: A CATALOGUE OF POSITIONS OF 2589 FK4 AND FK4S STARS

(NIKOLOFF AND HOG 1982)



February 1984

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February 1984

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ABSTRACT

Detailed descriptions of the data and format of the machine-readable catalog are given. The machine version is identical in data content to the published edition, but minor modifications in the data format have been made in order to effect uniformity with machine versions of other astrometric catalogs.

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SECTION 1 - INTRODUCTION AND SOURCE REFERENCE

The PERTH 75 (Nikoloff and Høg 1982) contains results of approximately 60000 photoelectric meridian circle observations made at the Perth Observatory for 1156 FK4 (Fricke and Kopff 1963) and 1433 FK4 Supplement (Astronomisches Rechen-Institut 1963) stars south of declination $+38^\circ$. The catalog reports proper motions and positions at epoch and equinox 1950.0 and was prepared according to recommendations set forth by W. Fricke for data to be incorporated into the new fundamental catalog FK5. The data used to derive the epoch 1950.0 positions are included in the catalog so that originally observed positions may be recomputed and used for geodetic purposes until the FK5 becomes available.

The accidental mean error of an individual position at epoch 1975 is $0''.07$ in right ascension (RA) and $0''.13$ in declination (DEC) at a zenith distance of 45° , while the mean error of the PERTH 75 system is $0''.05$ in RA and $0''.10$ in DEC. The mean errors of annual proper motions for FK4 stars are $\sim 0''.002$ and $< 0''.010$ for FK4S stars. The positions do not contain the large systematic errors of FK4, which can be, e.g., $0''.3$ in RA for $\delta < -75^\circ$. Of course, the reference system is not strictly FK4, but rather PERTH 75, an improved FK4 system.

This document describes the machine-readable version of the PERTH 75 catalog. It is intended to enable users to process the data without problems and guesswork. For additional information concerning positional and proper-motion errors, the observations and reductions, systematic corrections, accidental errors and comparison with the FK4 and PERTH 70 (Høg and von der Heide 1976) catalogs, users should consult the source reference. A copy of this document should be transmitted with any machine version of the catalog originally obtained from the Astronomical Data Center.

SOURCE REFERENCE

Nikoloff, I. and Høg, E. (in collaboration with C. Ayers, Mrs. I. Nikoloff, Mrs. C. Spencer, Mrs. M. Sultana, A. Verveer and P. J. Hoyer) 1982, *Perth 75, A Catalogue of Positions of 2589 FK4 and FK4S Stars* (Bickley, W Australia: Perth Observatory).

SECTION 2 - TAPE CONTENTS

A byte-by-byte description of the contents of the machine-readable PERTH 75 is given in Table 1. The suggested format specifications are for FORTRAN formatted read statements and can be modified depending upon individual programming and processing requirements. Default (null) values for data read with A format specifications are always blanks, while all data are present for numerical fields.

Table 1. Tape Contents. *PERTH 75 Catalogue.*

Byte(s)	Units	Suggested Format	Description
1- 4	---	I4	Star number in FK4 (< 2000) or FK4S (> 2000).
5- 7	---	3X	Blank
8-11	mag	F4.2	Observed visual magnitude, m_v , unless there is an "s" in byte 12.
12	----	A1	An "s" (lower case) if m_v has been taken from the FK4.
13	---	1X	Blank
14-16	---	I3	Code for spectral type used in computing refraction. Minus signs are always in byte 14. The corresponding HD spectral types, as given in Table 7 of Nikoloff and Høg 1982, are as follows: 8 = B0, 7 = B5, 6 = A0, 5 = A5, 3 = F0, 2 = F2, 1 = F5, -1 = F8, -2 = G0, -7 = G5, -12 = K0, -14 = K2, -17 = K5, -24 = M0, -25 = N, -26 = M5.
17-19	---	3X	Blank
20-21	hours	I2	Right ascension, α , at epoch 1950.0, referred to equator and equinox 1950.0. The determination of the equator and zero point in RA was made from observations of approximately 40 FK4 stars per night.
22	---	1X	Blank
23-24	min	I2	α

Table 1. (concluded)

Byte(s)	Units	Suggested Format	Description
83-84	---	I2	Number of accepted observations in α .
85-86	---	2X	Blank
87-88	---	I2	Number of accepted observations in δ .
89-91	---	3X	Blank
92-96	years	F5.2	Epoch - 1900 for the observation in α .
97	---	1X	Blank
98	---	A1	A letter "p" (lower case) if parallax and/or radial velocity used in computing apparent positions.

SECTION 3 - TAPE CHARACTERISTICS

The information contained in Table 2 is sufficient for a user to describe the indigenous characteristics of the magnetic tape version of the PERTH 75 to a computer. Information which is easily varied from installation to installation, such as block size (physical record length), blocking factor (number of logical records per physical record), total number of blocks, tape density, and coding (EBCDIC, ASCII, etc.) is not included: this information should always be supplied if secondary tape copies of the catalog are transmitted to other users or installations.

Table 2. Tape Characteristics. *PERTH 75 Catalogue.*

NUMBER OF FILES	1
LOGICAL RECORD LENGTH (BYTES)	98
RECORD FORMAT	FB*
TOTAL NUMBER OF LOGICAL RECORDS	2589

* Fixed block length (last block may be short)

SECTION 4 - REMARKS, MODIFICATIONS, ACKNOWLEDGMENTS AND REFERENCES

The machine version of the PERTH 75 catalog was received from Dr. I. Nikoloff on 13 December 1983 in the form of two IBM 3740 formatted diskettes. The diskettes were read on a PDP 11-44 minicomputer and the data written to magnetic tape using a utility program. They were then transferred to disk storage on an IBM 3081 computer for editing and subsequent reblocking to an archive tape. Certain minor modifications were made to the format to effect uniformity in data structure with other computerized astrometric catalogs and one correction to a data record was made. The changes made were as follows:

1. The coded spectral types had been written as integers; thus, the minus signs were not always in the same column. These were moved to occur always in byte 14.
2. The right ascensions in hours for zero hours were blank; they were changed to 00 and preceding zeros were added to all single-digit hours and minutes fields.
3. Declination fields were non-uniform, e.g. minus signs occurred in various columns depending upon the degrees value and were in the arcminutes fields for the zero declination zone. The minus signs were moved to occur always in byte 35, preceding zeros were added to single-digit ° and ' fields (the " fields already had them), and plus signs were added to all positive zones.
4. The $\Delta\cos \delta$ and $\Delta\delta$ fields were homogenized so that the signs and numbers occur uniformly.
5. Column headings were removed from the beginning of the file so that only uniform data are now present.
6. One data record (star 2764 at 9^h 32^m) was found to have shifted (non-aligned) $\Delta\cos \delta$, $\Delta\delta$ and Epoch values--these data were aligned.

ACKNOWLEDGMENTS

Appreciation is expressed to I. Nikoloff for supplying the machine version of the PERTH 75 catalog. Drs. Nikoloff and Iløg kindly reviewed a preliminary version of this document before the final was produced for distribution with the magnetic tape.

REFERENCES

- Astronomisches Rechen-Institut 1963, *Preliminary Supplement to the FK4 (FK4S)*, Veröff. Astron. Rechen-Inst. Heidelb., Nr. 11.
- Fricke, W. and Kopff, A. (in collaboration with W. Gliese, P. Gondolatsch, T. Lederle, H. Nowacki, W. Strobel and P. Stumpff) 1963, *Fourth Fundamental Catalogue (FK4)*, Veröff. Astron. Rechen-Inst. Heidelb., Nr. 17.

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Høg, E. and von der Heide, J. 1976, *Perth 70: A Catalogue of Positions of 24900 Stars*, *Abh. der Hamburger Sternwarte*, Band IX.

Nikoloff, I. and Høg, E. (in collaboration with C. Ayers, Mrs. I. Nikoloff, Mrs. C. Spencer, Mrs. M. Sultana, A. Verveer and P. J. Høyer) 1982, *Perth 75, A Catalogue of Positions of 2589 FK4 and FK4S Stars* (Bickley, W. Australia: Perth Observatory).

SECTION 5 - SAMPLE LISTING

The sample listing given on the following pages contains logical data records exactly as they are recorded on the tape. Groups of records from the beginning and end of the catalog are illustrated. The beginning of each record and bytes within the record are indicated by the column heading index across the top of each page (digits read vertically).

